RTSC

Remote Trackside Switch Control

Operation Manual

RCS America—RTSC

Operation Manual

This manual was written by RCS America
Any questions, please don't hesitate to call.

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Introduction:

Welcome to the New RailLinx 900 Control System now manufactured in the U.S. by RCS America. This is the first step in a long line of product upgrades for new and existing RCS customers. By transitioning from 27 to 900 MHz, this improves reception with greater distance and locomotive control. Giving you the enthusiast more functions to control your locomotive and greater ease of operation all in one system.

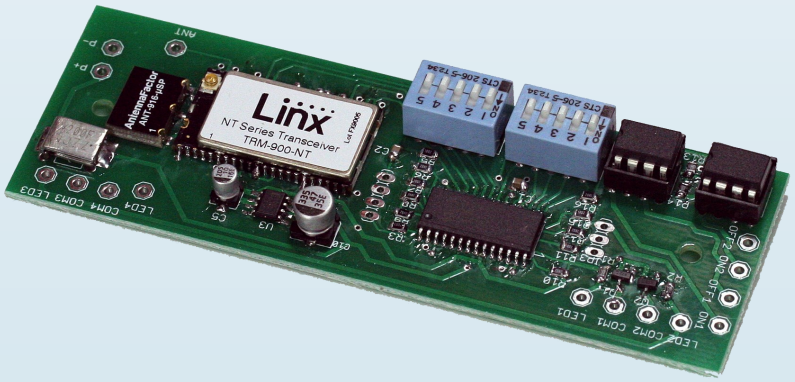
RTSC Overview:

The RTSC (Remote Trackside Switch Control) was inspired to give enthusiasts the ability to remotely control your trackside switches from an RF Transmitter. This idea was designed by my father (Dick Isard) to help anyone with bad knees the ability to operate their track switch remotely from a RF Transmitter without bending over.

So, let's turn the page and get started . . .

RTSC Specifications:
Frequency Bandwidth: 902—928Mhz
Operational Distance: 350—400ft. Line of Sight.
Maximum Transceiver Operational Reception: 3000ft.
Maximum switches operational per RTSC unit:
4 in Series / 8 in Parallel
Maximum switches operational by RailLinx 900 TX:
30 in Series / 60 in Parallel
Frequencies: 100
Maximum Voltage Input: 12 Volt DC / 110V DC Converter.
NT Transceiver Operational Voltage: 12V DC / Battery
110 Volt DC Converter—Supplied with the kit.

Manufacturer: RCS America a subsidiary of Cordless Renovations, LLC in conjunction with Specialty Engineering. Cedar Rapids, Iowa



Let's get started:
When you receive your RTSC kit, you will notice that the RTSC unit is housed in a waterproof case. This case is 99% water resistance to rain but not to standing water. We suggest when installing the RTSC case outdoors, cover the entire case by a building, train station or anything that has a bottomless cover. That way your able to protect the case from harsh weather conditions, and will be able to access the 5 pin Aristo Connectors to hookup your switch & LED's.

When you receive your RTSC system, it will already be pre-programmed to the default **"Home" & "Frequency"** settings. These default settings have been preset to channel 1, that correspond to the keypad on the RailLinx 900 hand transmitter. These preprogrammed frequencies are linked to the transceiver within your RailLinx 900 hand transmitter and do not need to be relinked every time you turn the system on.

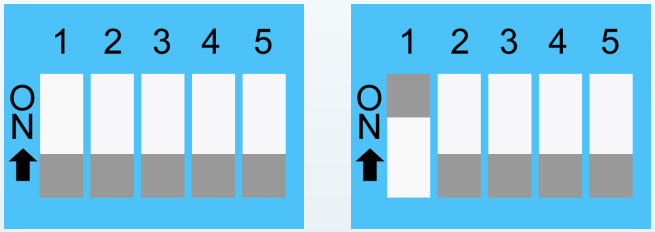
The RTSC system will automatically be set to the **"Home"** position. The means that every time you power on your RTSC unit, (whether you left it switched to the mainline or sidetrack) the RTSC will automatically move your track switch to the mainline and turn the dwarf signal LED to Green.

By pressing a pre-designated number of buttons on the RailLinx keypad. Your RTSC unit will automatically move your trackside switch to the mainline or to the side-track. This sequence of numbers have already been programmed into your RTSC system. All you have to do is select the first dip-switch that corresponds to the number of your track switch and the RTSC system will automatically select the next three numbers in series. **For example:** Question? ⟶

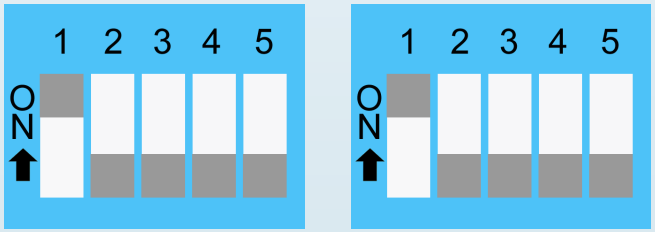
"This is my first RTSC system and I have four switches that I would like to power from one unit, how do I select and program the dip-switches for each track switch?"

Good Question!

Answer: When you receive your RTSC system, it will already be preprogrammed to the default settings. The default frequency setting is channel 1. So, if you open the RTSC case you will see two sets of five dip-switch panels in blue. Turn the case so the dip-switches are in the up-right position. From left to right the dip-switches are labeled as "tens & ones."



The dip-switch setting above shows the #1 channel has been selected. This is the **"Default"** setting. The dip-switch setting below shows the #11 channel has been selected.



Once you select your first channel **(IE: Ch. 1)** the RTSC system will automatically program the next three channels in series (2, 3 & 4). The RTSC frequencies also corresponds to the numbers on the RailLinx 900 keypad, in integers of five. So, the total number of RTSC switches you can operate is 30 in series or 60 in parallel. When programming your dip-switches here are the number values available from the RailLinx 900 keypad. 1—5 / 11—15 / 21 25 / 31—35 / 41—45 / 51—55

If you have selected #1 dip-switch in the "ones" position. The next three switches will automatically be selected to 2, 3 & 4. If you have multiple RTSC units, then your second set of switches would start at 5 then the next 3 positions will be 11, 12 & 13. Depending on the number of switches you want to control, you can skip the number 5 position and go directly to the 11 position with your second RTSC unit, that way your track switches will be in consecutive numbered order, 12, 13 & 14.

Opening & Closing Switches:
To move your switch from the mainline to the side-track, the sequence in which the buttons are pushed on your RailLinx 900 Transmitter is the same whether you open or close the switch. **For Example:** If I selected #1 dip-switch as the first switch I want to operate on my layout. I would press **(AUX / 1 / ENTER).** This sequence will open the switch.

Repeating this sequence **(AUX / 1 / ENTER)** will also close the switch. The only thing that changes in the sequence is the number which correlates to the number next to the track switch. **For Example:** If your second switch is in sequence on your layout and is numbered 2, then I would press **(AUX / 2 / ENTER)** to open or close that switch.

Cool Features: One of the coolest programming features embedded within the RailLinx 900 coding, is it's ability to multi-task. **For Example:** If you we're having an ops session with several of your fellow RailLinx enthusiasts and they wanted to remotely control your switches with their transmitter, they can. All they need to know is the number that correlates to your switch and they can open or close that switch from their transmitter.

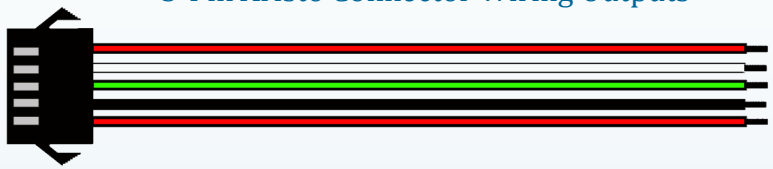
Installing your RTSC unit: There are four sets of five pin Aristo Quick Connectors coming out of your RTSC unit. Each set is numbered corresponding to the channel selected on the dip-switch panel inside the RTSC unit. There are five wires to each set. Each set of five wires controls power to the switch and power to each set of dwarf signal LED's. All five sets of wires are color coated that corresponds to your switch and the dwarf signal LED's.

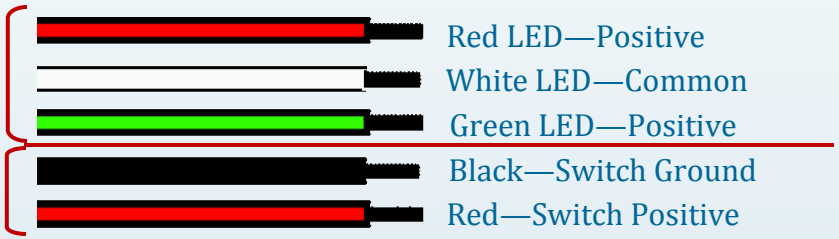
(See Chart on the Next Page & Wiring Diagram on Page 8)

Please Note: Each 5-Pin connector wire tips are heat-shrink to protect the circuit board from shorting out.

Dwarf Signal LED Wiring Output

5-Pin Aristo Connector Wiring Outputs





From the RTSC system to your track switch we suggest using underground sprinkler wire that is stranded tinned and covered in hard PVC electrical coating. This is readily available at Lowe's, Home Depot or Menards.

When installing the 5-Pin connector to your track switch or dwarf signal lights, we suggest removing the heat shrink from one wire at a time. Solder that connection, cover it in heat shrink then move on to the next connection. This will help illuminate short circuiting.

After all your connections have been made…

Power: When supplying power to the RTSC unit, we suggest using either the 110V Switching Power Adaptor that comes with the kit or a 12V 7amp SLA (Sealed Lead Acid) Battery. The AC/DC converter switching power supply automatically drops the AC 110V to DC 10V at 700 milliamps. If you choose a battery, the longer the wire runs to and from the switch, the more amps are needed to throw that switch.

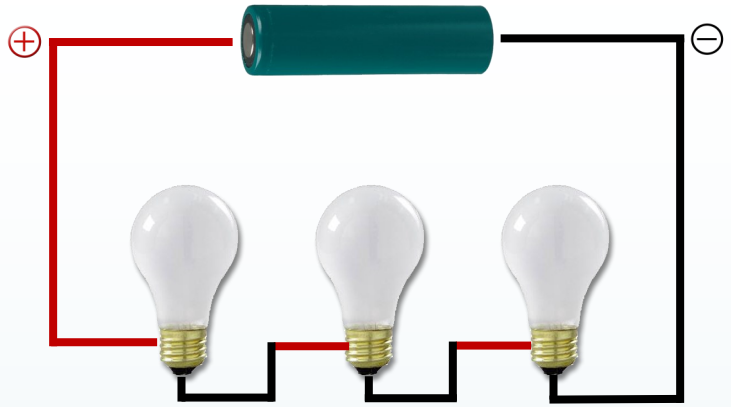
The first and every time you supply power to the switch, the RTSC system will automatically move the switch to the **"Home"** position, this will be your mainline track and the Green LED on the dwarf signal light will turn on.

Mine doesn't do that: If your RTSC system comes on and moves your switch to the side track instead of the mainline and turns on the Red LED. **Turn off power.** Switch the positive and negative wire leads going into your track switch. Turn power back on. Press **AUX / 1 / ENTER** on your RailLinx 900 TX, (you may have to press this sequence twice) it should reset and move your track switch to the mainline and turn on the Green LED.

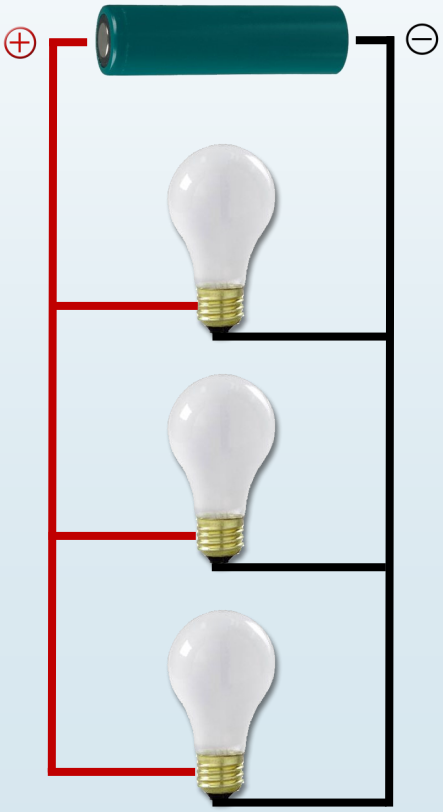
If you have any problems, give us a call: **319-366-7294.**

Wiring Multiple Switches: The RTSC is capable of throwing up to 30 switches in series and 60 in parallel. I have added a wiring diagram for each on the next page.

Wiring In Series



Wiring In Parallel



License Agreement

These license terms is an agreement between RCS America and you, "The Customer." They apply to any hardware, software, firmware and/or any method by which you receive and use these items. These terms apply to Updates, Network or App based software/graphics, Support Services, Hardware, Software and/or Firmware on all RailLinx 900 Product lines. By using any of the items listed in this agreement, you accept the terms of the agreement.

The Product (RailLinx 900 Control System) is the intellectual property of RCS America, a subsidiary of Cordless Renovations, LLC. This agreement gives you limited rights to use the Product. RCS America reserves all other rights. This Product is copyrighted, and has a "patent pending" in technical design, software and code which incorporates RCS America technology and/or intellectual property. You may use this Product only as expressly permitted in this agreement. You may not . . . Work around any technical limitation of this Product. Reverse engineer, decompile or disassemble this Product. Make copies of this Product. Publish any portion of this Product for others to copy. Make a derivative work of this Product, and use any portion of this Product together with an unauthorized product. View the entire license agreement at RCS America's website.

Warranty

This Product is fully factory tested and warranted against manufacturer defects for a period of 1 year from the DOP. As circumstances in which this product is installed can not be controlled, failure of the product due to installation problems can not be warranted.

This includes: Misuse, improper wiring, operation under conditions beyond the design range of the product. Operating this product in weather conditions (ie: rain, snow, etc…) that would accumulate corrosion or shorts to electrical contacts.

Manufacturer defect refers specifically to the physical assembly of the hardware circuit board, transceiver, membrane overlay, PNP transceiver socket and all electrical components pertaining to the usage of the RailLinx 900 Control System. Since this throttle is flash upgradable; software defects/bugs are not grounds for replacement. In the event that you discover a software problem, the throttle can be returned to RCS America or reprogramming.

Accidental Damage

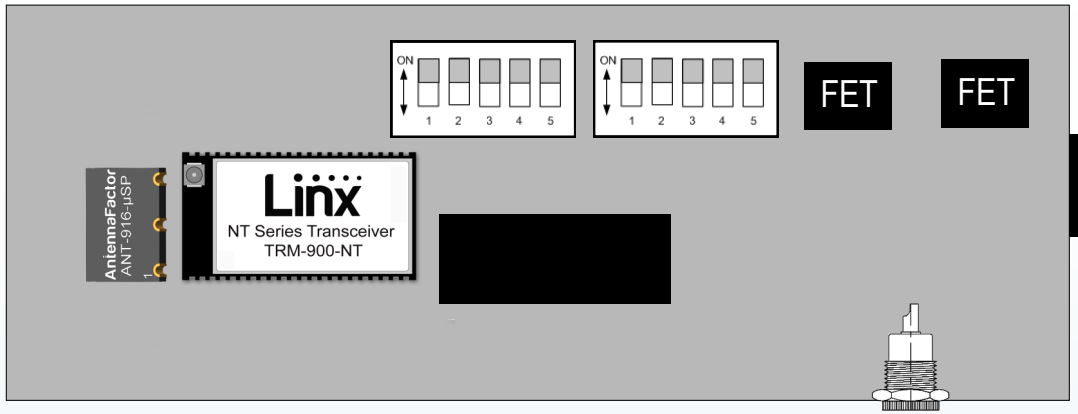
Failures caused by faulty installation or lack of adherence to the methods outlined in the installation guide are not covered under the manufacturers guarantee.

If you experience an "accident" during installation and your RCS America product will no longer work. Each customer will be given 1 complimentary replacement part at a reduced cost. We understand that accidents happen, but we can not financially be liable for installation mistakes.

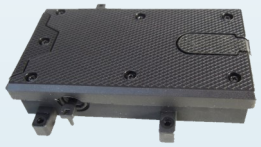
Customer Service / Parts

For warranty or replacement parts, contact
RCS America Customer Service at 319-366-7294.

RCS RailLinx 900 RTSC Wiring Diagram



Your RTSC comes with the 12V switching power adaptor that plugs directly into the side 2.1mm panel mount jack for power. Or you can use the 2.1mm DC extension power cable that is also supplied with the kit to hookup to a 12V 7amp SLA battery-pack.



Track Switch Wiring Configuration:
Red—Power / Positive
Black—Power / Negative

Dwarf Signal Light Wiring Configuration:
Green—LED / Positive
White—LED / Common
Red—LED / Positive

Tracking Switches

Switch 1 _____

Switch 2 _____

Switch 3_____

Switch 4_____

Switch 5_____

Switch 11_____

Switch 12_____

Switch 13_____

Switch 14_____

Switch 15_____

Switch 21_____

Switch 22_____

Switch 23_____

Switch 24_____

Switch 25_____

Switch 31 _____

Switch 32 _____

Switch 33_____

Switch 34_____

Switch 35_____

Switch 41_____

Switch 42_____

Switch 43_____

Switch 44_____

Switch 45_____

Switch 51_____

Switch 52_____

Switch 53_____

Switch 54_____

Switch 55_____